

AMENDMENTS TO THE DRAWINGS

The attached Replacement Sheets 1/8, 4/8, and 7/8 of the drawings include changes to Figures 1, 4A, and 6B and therefore replace the Original Sheets 1/8, 4/8, and 7/8 including Figures 1, 4A, 4B, 6A, and 6B.

Attachment: Replacement Sheets 1/8, 4/8, and 7/8

REMARKS

Claims 1-9 are now pending in the application. Claims 1-9 stand rejected. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

SPECIFICATION

The specification has been amended to incorporate language found in the originally filed Claims 8, 19-21, and 49 and to correct various informalities. As such, no new matter has been added.

DRAWINGS

The drawings stand objected to for failing to show every feature of the invention specified in the claims. Applicants have attached revised drawings for the Examiner's approval.

In the Replacement Sheet 1/8, the reference number 10 (partial PEM fuel cell stack) has been added to FIG. 1 in the upper right hand corner. Support for this change can be found in Paragraph [0032]. Additionally, the reference number 52 has been removed, as it is not included in the disclosure.

In the Replacement Sheet 4/8 (FIG. 4A), the reference number 122 (frame) has been removed. The reference number had been incorrectly included in the upper, center of the figure.

In the Replacement Sheet 7/8 (FIG. 6B), the reference number 108 (adjacent face of the diffusion medium 30) has been added in place of the former reference number 102.

The reference number 108 (in place of reference number 102) is located at the bottom, right of the figure. Support for this change can be found in Paragraph [0037]. Additionally, the reference number 122 (frame) has been added to FIG. 6B. Support for this addition can be found in the application as originally filed. In particular, support can be found in FIG. 6A and amended Paragraph [0037].

REJECTION UNDER 35 U.S.C. § 112

Claims 1-9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner states that the term “active element” is unclear. Applicants submit that one skilled in the art would understand the term “active element” to refer to the MEA 14, 16 with its reactive face and may further include the flow-interfering medium 26, 28, 30, 32. See Paragraphs [0032] and [0033].

Accordingly, in view of at least the above discussion, Applicants respectfully request reconsideration and withdrawal of the present rejection of Claims 1-9 under 35 U.S.C. § 112, second paragraph.

Further, the Examiner states that Claim 8 is unclear as to how the frame 122 is interposed between said first gas-impermeable element 66 and said second gas-impermeable element 76. Applicants have submitted

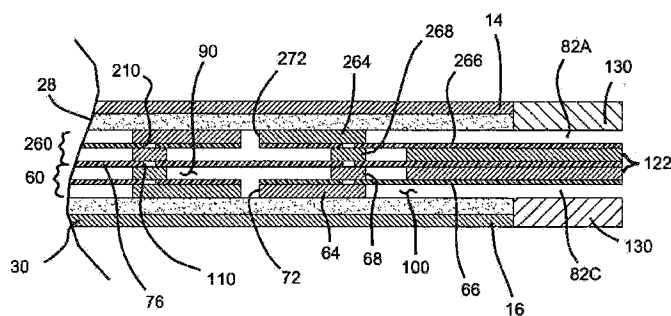


FIG 6B

Replacement Sheets, including changes to FIG. 6B, showing the location of the frame 122 between the first gas-impermeable element 66 and the second gas-impermeable element 76. Additionally, Applicants have amended Paragraph [0037] to more clearly describe the location of the frame 122 between the first gas-impermeable element 66 and the second gas-impermeable element 76. For example, Paragraph [0037] describes that “the frame 122 may be laminated between the first sheet 66 and the second sheet 76 and may circumscribe the pillars 68.”

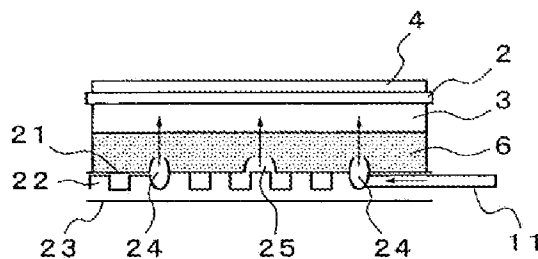
Accordingly, in view of at least the above discussion, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 8 under 35 U.S.C. § 112, second paragraph.

PRIOR ART REJECTIONS

Claims 1-3 and 5-9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Komada (U.S. Pat. No. 7,201,991, hereinafter “Komada”). Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Komada in view of Bronoel (U.S. Pub. No. 2001/0006745, hereinafter “Bronoel”). These rejections are respectfully traversed.

Applicants note that Komada discloses a hollow separator 8 formed by a three-layer structure including a metal upper plate 21, and intermediate plate 22 and a lower plate 23. See Komada at Col. 8, Lines 37-63. The gas discharge openings 24, 25 in upper plate 221 supply fuel gas to the fuel electrode

FIG. 3



current collector 6, which faces the separator 8. See Id. and FIG. 3. Fuel gas discharged from the gas discharge openings 24, 25 can be spread to a fuel electrode layer 3 with distribution through the fuel electrode current collector 6. See Komada at Col. 9, Lines 15-18. Gas is not distributed through the volume defined between intermediate plate 22 and lower plate 23. As such, Komada does not teach or suggest a first planar manifold and a second planar manifold.

Furthermore, Komada does not teach or suggest a flow path from a second planar manifold through the orifice over the active element to the first planar manifold. As noted above, a flow path does not exist from the region between plates 21 and 22 through the gas discharge openings 24, 25 over the electrode 3 to the fuel electrode current collector 6. Instead, the flow path of Komada is from the region between plates 21 and 22 through the gas discharge openings 24, 25 over the fuel electrode current collector 6 to the electrode 3.

In contrast, Applicants' Claim 1 recites:

"a second planar manifold defined between said first gas-impermeable element and a second gas-impermeable element in a subjacent relationship to said first planar manifold;

...wherein a flow path is established from said second planar manifold through said orifice over said active element to said first planar manifold..."

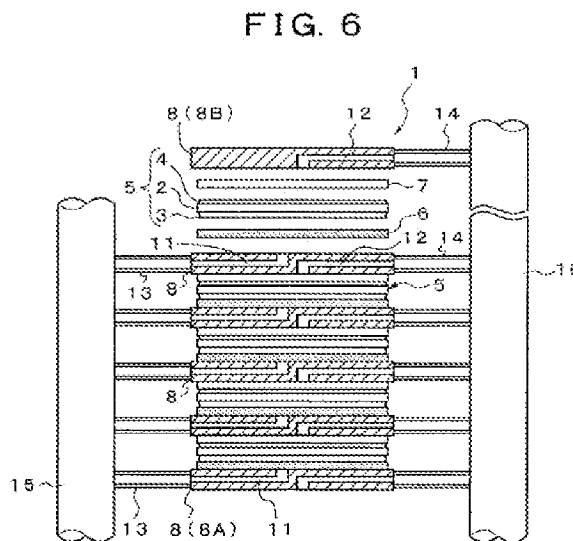
In view of the above discussion, Applicants assert that Komada does not teach, suggest or disclose each and every element of Applicants' Claim 1.

With regards to Claims 2-9 which depend from Claim 1, Applicants respectfully submit that Komada does not teach, suggest or disclose each and every element for at least the reasons discussed above. In addition, these claims further define the

structural configuration of a fuel cell and its electrical continuity in a manner that is not described or suggested in Komada. For example, Claim 8 recites:

“...a frame **interposed between** said first gas-impermeable element and said second gas-impermeable element.”

The Examiner looks to the connecting pipes 14 as shown in FIG. 6 in support of a frame interposed between the first gas-impermeable element and the second gas-impermeable element as recited in Applicants' Claim 8. However, the connecting pipes 14 are only shown interfacing with the exterior rim of the



separators 8. Komada fails to disclose that the connecting pipes 14 are disposed between the plates 21 and 22 as recited in Applicants' Claim 8.

Accordingly, in view of at least the above discussion, Applicants respectfully submit that Komada does not teach, suggest or disclose each and every element of Claims 1-9, and thus, Applicants respectfully request the Office to reconsider and withdraw the rejections of these claims.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office

Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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